TIMS/MANA JOINT SEMINAR

題目： Bioinspired Strategies for Polymer Hydrogels

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Abstract

In nature, many interesting approaches to chemical synthesis and processing of materials can be identified and used to inspire the development of new synthetic materials. In this talk I will focus on two approaches to formation of synthetic polymer hydrogels. The first is inspired by mussel adhesive proteins, which employ unique proteins of unusual amino acid composition to form secure attachment to surfaces in wet, often turbulent environments. The second example will be devoted to thioester functional groups, which in natural systems participate in a number of biochemical reactions in cells, and which can be exploited in a chemospecific manner to form polymer hydrogels. These two strategies are being exploited in our laboratory to develop rapid in-situ forming hydrogels. The resulting materials offer a range of useful physical properties which may prove valuable in a variety of clinical regenerative medicine contexts, for example for tissue bonding/adhesion, cell encapsulation and tissue transplantation.

担当 物質・分子工学専攻 長崎幸夫(5749)